

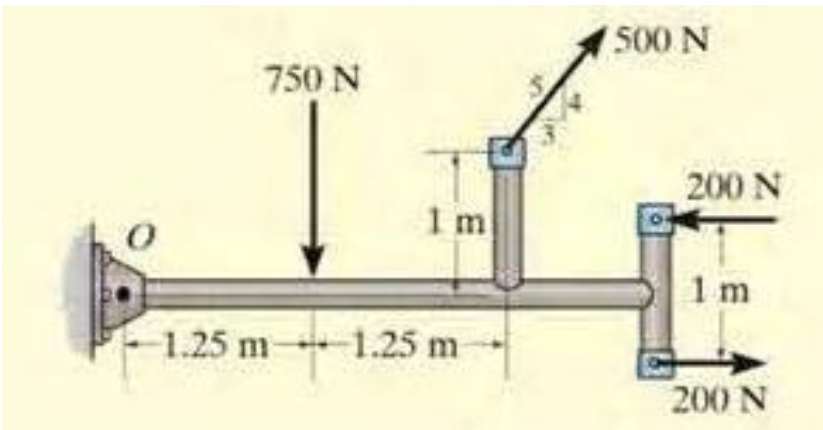
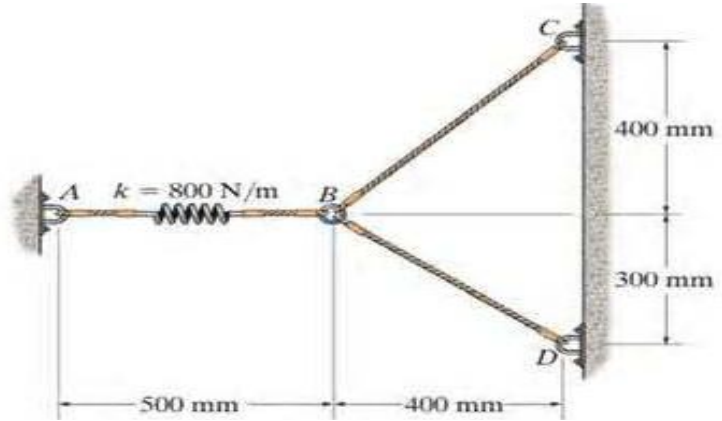


<b>Alexandria Higher Institute of Engineering &amp; Technology (AIET)</b>		
Department of: General	Preparatory Year	0 <sup>th</sup> Year
ME001	Mechanics I	Final, Jan., 14, 2013
Examiners:	Dr. Hossam Eladly and Dr. Rola Afify	Time: 3 hours

**Answer the following questions:**

**Question one: (10 marks)**

The spring has a stiffness of  $k = 800 \text{ N/m}$  and an unstretched length of 200 mm. Determine the force in cables BC and BD when the spring is held in the position shown.

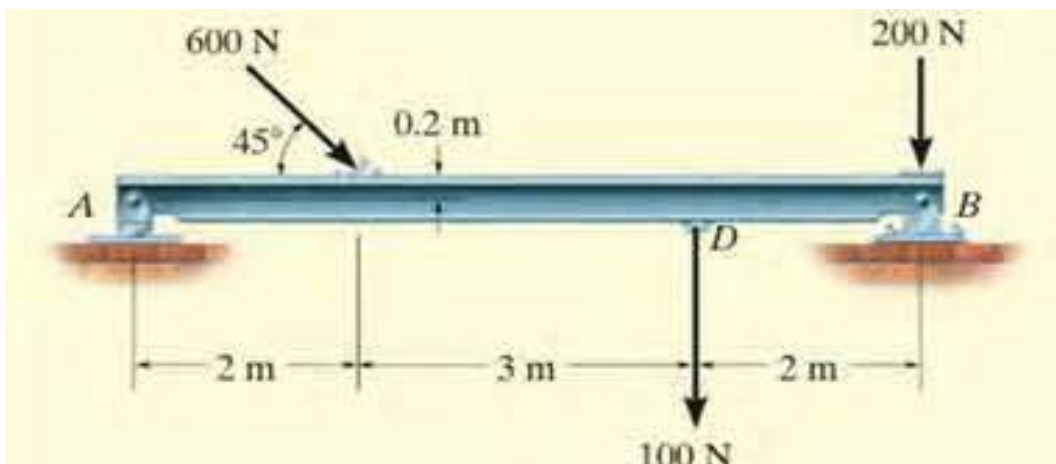


**Question Two: (10 marks)**

Replace the force and couple system acting on the member in the following fig. by an equivalent resultant force and couple moment acting at point O.

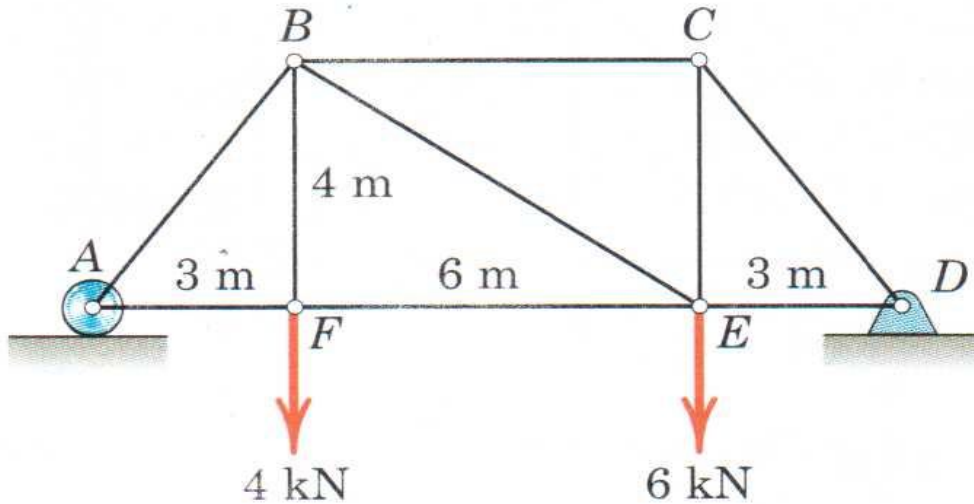
**Question Three: (10 marks)**

Determine the horizontal and vertical components of reactions on the beam caused by the pin at B and rocker at A as shown in the fig., Neglect the weight of the beam.



**Question Four: (15 marks)**

Determine the force in each member of the truss and state if the members are in tension or in compression.



**Question Five: (15 marks)**

The frame supports the 400 kg load in the manner shown. Neglect the weights of the members compared with the forces induced by the load and compute the horizontal and vertical components of all forces acting on each of the members.

